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ABSTRACT

The purpose of this study was to explore relationships existing between present-day teacher competencies and those resulting from a study conducted in the 1920's called the Commonwealth Teacher-Training Study and to determine if empirical sortings will cluster "competencies" into categories that support those developed logically through prior investigation. The population for this study consisted of two pools of teacher competencies: The present-day "Florida Teacher Competency List" and the Commonwealth Study. Samples of fifty items were drawn from the two lists and matched for content. The sets were judged to determine equivalency of items. Sets of fifty items alternating between Florida and Commonwealth were given to forty volunteer teachers to be sorted into groups that they saw as describing the same aspects of teaching. Data from the sortings were interpreted and ten categories determined from the Commonwealth material and eleven from the Florida list. The categories seemed to follow quite clearly from the content of the statements defining the categories. Results of the analyses and the categorization of items from two different populations seem to indicate that a high degree of relationship exists between these two sets of items. The second question is not as well supported because only four of the latent categories matched similar logical categories. The results tend to support a connection between past theory and practice in teacher education and the present movement in competency based teacher education. While the results do not support the established logical categories of competencies, the methodology employed seems to be a suitable tool for investigating the structure of these sets of competencies. (Author/MB)

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TEACHER COMPETENCIES - NOW AND THEN
WHAT IS THE RELATIONSHIP

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TEACHER COMPETENCIES - NOW AND THEN
WHAT IS THE RELATIONSHIP?

The recent movement toward Competency Based Teacher Education (CBTE) has been met with mixed emotions. Some teacher-educators view this with a jaundiced eye while others see CBTE as the panacea that will cure the ills of teacher training specifically and public secondary and elementary education in general.

As a model of teacher training CBTE requires prospective teacher candidates to acquire to a prespecified level, performance behaviors and skills that will promote desirable learning habits in the students they teach. As a result of its focus upon performance behaviors and skills, CBTE has caused educators to develop long lists of "competencies" which the teacher candidate must demonstrate in order to be judged "competent" to enter the profession. One such compilation of competency statements was made by the Florida Department of Education in 1973. This list includes some twelve hundred statements.

This movement toward CBTE has been rapid within the past five years and has been described by Houston and Howsam (1972) as one that has great potential for renovating and regenerating teacher education.

Although the CBTE movement is relatively young, several authors trace its origins to the decade of the 1960s. Elam (1971), Houston and Howsam (1972) and Gage and Winne (1975) have been among those who have either alluded to or explicitly stated that antecedents of CBTE can be found in the dissatisfaction of the public with education

during this period and the increased emphasis upon management-accountability principles.

While these writers (Elam, 1971; Houston & Howsam, 1972; Gage and Winne, 1975) may in fact be correct, there are those who believe the CBTE movement has much older historical origins. Among these is Ralph Tyler, who in a recent interview with Shane & Shane (1973), made this point when he stated that

> . . . I had the good fortune to be a research assistant to W. W. Charters when he was in charge of the influential Commonwealth Teacher-training Study. It was designed to identify the activities of teachers upon which their Preparation should be based. In other words, the Commonwealth Study was performanced based.
>
> In the Study report which was published in 1929, Charters identified 1,001 activities which teachers must learn to be effective in the classroom. We have the same thing coming up now in 1973, and I fear we are back almost 50 years ago. Apparently, we keep on rediscovering ideas rather than building on them. . . (p.43)

The purpose of this study was first: To explore what relationship might exist between what are now considered teacher "competencies" and what was thought to be activities teachers must learn to be effective in the classroom in 1929; and second: To determine if the empirical sortings will cluster items into categories which are analogous to categories logically determined by prior investigators.

Related Literature

As a result of the Commonwealth Study, Charters and Waples (1929) suggested that there was a vast body of fact and opinion available on the training of teachers. They further speculated that many of these works were a matter of individual judgement. Therefore, they

carried out their study because, among other things, they felt courses for teachers showed a disquieting lack of coordination and that there was no objective basis for determining the fundamentals of teacher-training courses.

In carrying out their study Charters and Waples (1929) also reported a subproblem of classification that would allow for reduction of overlapping in order to provide a discrete classification of activities.

Charters (1929A, 1929B, 1930) writing both before and after the completion of the Commonwealth Study continually alluded to the necessity of developing teacher-training programs based upon specific objectives and that teacher-candidates be given adequate practice in carrying out these specific objectives.

A sampling of the current literature about CBTE reveals a vast body of material written in the opinion mode and several reviewers (Elam, 1971; Elfenbein, 1972; Heath and Nielson, 1974; Gage and Winne, 1975) who strongly recommend that much research is needed in the field to substantiate the base for CBTE. These same writers are among those who have suggested that the relationship between competencies and student achievement needs significant exploration.

Elam (1971), for example, suggested that until the relationships between teacher behaviors and pupil learning can be more firmly established through research, judgements will be made on a priori grounds. He further pointed out the need for research in all areas of Performance-Based Teacher Education (PBTE) and/or its companion CBTE.

Elfenbein (1972) writing in the same AACTE series also expressed a concern for relating teacher's behavior to pupil learning. In addition, however, she pointed out a need for intensive and continuous research for validation of objectives and competencies. She also stated that through such analysis and research it might be possible to strengthen the unstable theoretical base upon which PBTE now stands.

Heath and Nielson (1974) conducted a review of research on PBTE and concluded that a need still exists to provide an empirical basis for the prescription of teacher-training objectives. Further, they stated the paucity of research on the relationship between teacher behavior and student achievement might be a significant factor for this lack.

As a part of their work Burdin and Mathieson (1972) reported that most papers dealing with PBTE were mainly opinion, discussion and description. They found very little research on PBTE or its companion CBTE.

Gage and Winne (1975) in their chapter on PBTE are among those who continue to point out that work is needed to explore the relationship between specific competencies and promotion of student learning in particular, and all other facets of CBTE-PBTE as well.

One investigator reported a study in which an attempt was made to empirically validate a student-teacher evaluation form so that it would be a step toward objectifying competency evaluation. Burkhart (1974) analyzed student teacher evaluation forms used in 89 New York State Institutions which prepare teachers. From these he gleaned and analyzed over 3000 items which reduced to a usable

form called Representative College Student-Teacher Evaluation Form. The analysis yielded items in ten categories, Burkhart also showed a second system developed by Educational Assessment Systems Corporation which showed analogous categorization.

Method

Population: The populations for this study consisted of two finite pools of teacher competency statements. One pool resulted from the Commonwealth Teacher-training Study and the second was developed by the Florida Department of Education in their 1973 compilation of teacher competencies.

Sample: A sample of 50 items was drawn, using a table of random numbers, from the Florida Competencies. A second matched set of items (50) was selected from the Commonwealth group. The matched pairs were submitted to two judges to determine equivalancy of both items in a pair.

Procedures and Results: The resulting sets were compiled as groups of 50 separate items to facilitate sorting by the 40 volunteer teachers. The sets were assigned to the volunteer sorters on an alternating basis beginning with a Florida Set.

The two sets of statements, the 50 Florida items and the 50 Commonwealth items were sorted into homogeneous groups. The teachers were instructed to sort the items in their set following a procedure suggested by Miller, Fowlkor and Lambert (1967). That is, they were asked to group together those statements they saw as describing the same aspect of teaching and were to make no judgement as to the

quality or priority of the statements. They were free to sort into an undetermined number of categories with the exception that 50 separate classifications were not desirable. The sorters were further instructed to continue sorting, resorting and combining categories and statements until they were completely satisfied with their groupings.

Two 50 x 50 symmetric joint proportion matrices were determined from these two sortings. The ijth entry of the joint proportion matrix is an index of the proportion of sorters placing items i and j into the same manifest categories.

Following Wiley (1967) and Hofmann (1975) the latent structure of each joint proportion matrix was estimated by the Latent Partition Analysis (LPA) Model. This model may be used to relate the manifest categorizations of a group of sorters to a hypothetical latent categorization of the items.

LPA is analogous to an oblique independent cluster solution in factor analysis. The latent categories are analogous to factors. The estimate of the manifest partition matrix (EMP) is analogous to a factor pattern matrix, even with entries sometimes greater than unity. Analogous to the primary factor intercorrelation matrix is the confusion matrix.

For each set an EMP was computed as well as the associated confusion matrices. The EMP matrices are reported in Tables 1-A and 1-B. All EMP entries less than .40 in magnitude have been replaced with blanks. Very generally the entries of this matrix may be thought of as indexing item membership in a latent category.

The greater the magnitude of the entry the greater the probability of item membership in the latent category. It may be observed in Tables 1-A and 1-B that some entries are greater than unity; this is not an error. Such large values occur because the entries are only estimates of probability.

INSERT TABLES 1-A AND 1-B HERE

Initially, ten latent categories were estimated for the Commonwealth Statements - Group 2 (see Attachment 2) while 11 latent categories were estimated for the Florida Statements - Group 1 (see Attachment 1). Inasmuch as the confusion matrices are composed of non-zero entries it is reasonable to assume that the latent categories are not independent. These confusion matrices are reported as Tables 2-A and 2-B. The ijth entry of the confusion matrix represents the probability of the joint occurrence of any pair of distinct items from latent categories i and j. Because of the objectives of this study the confusion matrices are of no particular interpretative interest.

INSERT TABLES 2-A AND 2-B HERE

In an attempt to consolidate the two analyses, the Commonwealth Items and the Florida Items, the matched items were assessed across the two solutions to identify groupings of items common to both analyses. In Table 3 the two LPA solutions are summarized with regard to their common groupings of items. In so doing the number of items within each category has been reduced. Only those items

grouping together within both analyses were retained to define the "robust latent categories". Thus if an item was associated with one grouping of items in the Florida sort and its logical equivalent was not associated with a similar grouping of items in the Commonwealth Scudy the pair of items would be excluded from the "robust latent category" assumed to be defined by the similar item grouping within the two EMP matrices.

In determining the robust latent categories reported in Table 3 the meaning of the confusion matrix is obscured. Thus we will not consider it any further in our discussion of the "robust latent categories". The meanings of the "robust latent categories" follow quite clearly from the contents of the statements defining the categories.

INSERT TABLE 3 HERE

Three of the "robust latent categories" relate to the instructional process. Category One, Preparing For Instruction, includes seven item sets and indicates those things one does in preparing for instruction. Category Six is activities that one must do when Managing Instruction, while Seven is defined by activities which Involves the Students in Learning and instruction.

Although Category Eight, Providing for Individual Differences, does incorporate activities which can be considered part of instruction, the scope seems broader. It should be considered as concern for individual differences in instruction and other facets of educational experiences.

Two categories, Three and Four, are concerned with the human relations aspects of teaching. Category Three, labeled Developing Interpersonal Skills deals with the teacher's rapport with students, while Category Four, Professional Working Relationships, defines the teacher's rapport with professional staff members.

In a sense, Category Nine, Providing a Model, might be considered in the interpersonal relations area. However, the category defines the teacher as a behavioral model for his/her students.

Category Five, Functioning in the Community, includes rapport with individuals and groups in the community. It also includes those activities which a teacher carries out within the community structure, such as attending meetings and other functions.

The remaining category, Two, is labeled Record Keeping. It is made up of activities which a teacher must carry out as part of the administrative function of education.

Summary and Conclusion

An inspection of the item groupings of the "robust latent categories" reveals that 38 pairs of items grouped together while 12 pairs did not show overlap. Since 38 of the 50 pairs of items appear in the "robust latent categories" this seems to support the notion that the items are from the same domain and that the answer to the first question: What relationships exist between recently constructed teacher competencies and those developed several years ago? would be that a rather high degree of relationship exists between the two populations.

Those pairs of items which were eliminated from the "robust latent categories" were shown in the independent EMP's to hold some relationship to the items within the final latent categories.

An analysis of the final "robust latent category" structure with reference to the logically developed categorization of the items in the populations from which the samples were drawn shows that there is enough overlap to support logical categories with four of the latent categories. However, the remaining five latent categories contain items which are drawn from two or more logical categories.

In light of the foregoing information, it is believed that the answer to the second question: Will the empirical sortings cluster items into categories which are analogous to categories logically determined by prior investigators? is somewhat less clear than the answer to question number one. It appears that the mixed results can be interpreted as only mild support for the logically derived categories.

In conclusion, the results of this study tend to support a connection from the present movement in CBTE to past theory and practice in teacher education, while they do not substantially support the existing logical categories of teacher competencies. In any case, the model used in the study seems to be useful in empirically establishing categories for these competencies.

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ATTACHMENT 1

Florida Competency List

F1. Prepare teaching plans to provide experiences so that children gain both enjoyment and knowledge.

F2. Select instructional materials according to the criteria established by child development theorists.

F3. Interprets pictures, charts, graphs and tables.

F4. Develop flexible assignments.

F5. Answer student's questions in such a way as to promote learning by the student.

F6. Motivates students by projecting an enthusiastic attitude.

F7. Makes use of students' names in teaching.

F8. Keeps abreast of advances in subject knowledge and instructional materials.

F9. Determine when a student is adequately prepared to seek a part-time job.

F10. Make decisions concerning subsequent courses of action pertaining to specific educational objectives.

F11. Elicit suggestions from students.

F12. Promote warm rapport with the community.

F13. Demonstrate technical skill competence in instructional area.

F14. Create check-off system.

F15. Structure lessons which encourage divergent thinking in students.

F16. Provide effective story-telling, dramatization and poetry experiences.

F17. Exhibit empathy; that is, being honestly concerned with understanding how students think, feel, and perceive.

F18. Hold case conferences with appropriate professional personnel.

F19. Design learning experiences which develop inquiry, decision-making and problem-solving skills.

F20. Select activities on basis of individual abilities and interests.

F21. Utilize research in education in planning instruction.

F22. Make home visits.

F23. Assist at book fairs, cake sales, etc.

F24. Assist parents with individual school problems.

F25. Maintain appropriate library records.

F26. Keep accurate records related to supplies.

F27. Group flexibly for special needs.

F28. Recognize personal limitations.

F29. Organize objectives so as to provide for a logical order of presentation.

F30. Give respect and affection to children.

F31. Model the types of behaviors desired as student behaviors.

F32. Establish an emotional climate in the classroom which pupils perceive as open to their responses.

F33. Meet supervisors for guidance and for assistance.

F34. Keep a record of class and individual progress.

F35. Keep records, such as health and attendance records.

F36. Provide leadership.

F37. Use feedback information from individual students as a basis for modifying the message being communicated.

F38. Demonstrate skill in mentally evaluating students' responses as the lesson developes by making assignments according to the students' expressed needs and motivation.

F39. Invite the help of principal, supervisors, and peers if needed.

F40. Support the efforts of other school personnel.

F41. Establish rapport with other school staff members.

F42. Meet with supportive personnel: mental health, music, art, health, community coordinators, custodial help.

F43. Attend and participate in meetings of community organizations.

F44. Collect accurate, pertinent information about pupils and use it effectively.

F45. Keep continuous inventory control of all equipment and materials.

F46. Formulate and uphold acceptable student standards of behavior.

F47. Organize activities to use time efficiently.

F48. Select activities to supplement basic text or other materials.

F49. Supervise all milk and lunchroom records and collections.

F50. Develop guidelines for evaluation.

ATTACHMENT 2

Commonwealth Competency List

C1. Planning methods of providing sufficient opportunity for pupils' activities.

C2. Selecting group assignments - applying general laws of learning, recent theory and results of experimentation.

C3. Noting, outlining and recording useful information - lessons, reading charts, diagrams, graphs, maps.

C4. Adapting assignments to the abilities and needs of the class.

C5. Following up pupils' responses - using pertinent element in a pupil's statement to develop topics for discussion.

C6. Expressing interest in subject taught through scholarship, dramatic sense, appreciation of aspects appealing to pupils.

C7. Establishing cordial relations with pupils.

C8. Taking courses in professional subjects.

C9. Conducting business transactions - finding employment for pupils.

C10. Utilizing objectives - checking all plans against objectives, evaluating teaching, methods, testing adequacy of results.

C11. Allowing pupils to assume adequate responsibility for conduct of class activities.

C12. Establishing cordial relations with members of the community at large.

C13. Demonstrating skills and learning procedures.

C14. Making out records and reports.

C15. Presenting learning exercises and problems - formulating questions, introducting problems.

C16. Conducting special exercises - telling stories, conducting singing, recitation of poems and quotations.

C17. Expressing interest in individual pupils through such traits as sympathy, loyalty, friendliness, good humor.

C18. Obtaining advice and information from principal and department head.

C19. Solving problems, finding information by which problems of course may be solved; applying principles to solutions of problems; acquiring skill in problem solving.

C20. Adapting teacher's procedures to individual differences.

C21. Finding efficient methods of planning - consulting literature on subject.

C22. Meeting socially with parents (visiting in home).

C23. Activities involved in supervising drives and campaigns.

C24. Giving assistance to parents.

C25. Filling out blanks and forms - program forms, library slips, study cards.

C26. Making records and reports concerning supplies and equipment.

C27. Grouping pupils - grouping for special purposes.

C28. Studying one's own strengths and weaknesses.

C29. Arranging sequence of units - determining logical sequences.

C30. Expressing interest and friendliness with pupils.

C31. Traits which serve as example to pupils.

C32. Traits involved in maintaining friendly relations with pupils.

C33. Making professional visits to supervisor.

C34. Making out records and reports about classwork.

C35. Keeping records and reports about health and attendance.

C36. Expressing qualities of leadership, such as self-confidence, fairness, open-mindedness, energy.

C37. Utilizing pupils' contributions from reading and experience - basing teaching procedures upon pupils' experiences.

C38. Determining pupils' interests - ascertaining pupils' likes and dislikes, studying pupils' reactions.

C39. Obtaining advice and information from supervisor, other teachers, principal.

C40. Supporting policies of principal, superintendent, supervisor.

C41. Securing cordial relations with principal, superintendent, supervisor, other teachers.

C42. Making professional visits to nurse, physician, janitor, librarian.

C43. Participating in meetings with the community at large, social organizations.

C44. Obtaining information about pupils' abilities.

C45. Caring for school property - avoid losses and waste of equipment and supplies.

C46. Giving instructions to pupils in attending to personal proprieties.

C47. Scheduling activities - arranging time schedules covering time for assignments, for entering schoolroom, for games, for seat work etc.

C48. Presenting supplementary materials and selecting effective illustrations.

C49. Managing funds in supervising special programs.

C50. Setting sup standards for achievement.

TABLE 1-A*

Estimate Manifest Partition Matrix
(Group 1 - Florida)

Statement Number	Categories 1	2	3	4	5	6	7	8	9	10	11
F1	82					42					
F2						94					
F3							49				50
F4	81						45				
F5								103			
F6							-48	59			
F7		87									
F8						70					74
F9				41	53						
F10						84					
F11								85			
F12					105						
F13											104
F14			58								
F15	107										
F16	43					-45					59
F17		106									
F18				105							
F19	84										
F20	65						70				
F21						107					
F22		56			74						
F23					111						
F24		60		43	54						
F25			110								
F26			108								
F27							114				
F28							74				
F29						85					
F30		104									
F31										89	
F32								95			
F33				116							
F34			83								
F35			102								

TABLE 1-A* (Con't.)

F36									94	
F37							85			
F38						69	63			
F39				111						
F40								71		
F41								78		
F42				45				44		
F43					110					
F44						71				
F45			103							
F46									75	
F47	48				55					
F48	80									43
F49			103							
F50					71	42				

* The entries in this table were multiplied by 100.

TABLE 1-B*

Estimate Manifest Partition Matrix
(Group 2 - Commonwealth)

Statement Number	Categories 1	2	3	4	5	6	7	8	9	10
C1	116									
C2	70								45	
C3	88									
C4										
C5								115		
C6								61		
C7			119							
C8							129			
C9										54
C10	62									
C11								81		
C12					110					
C13						78				
C14		112								
C15						109				
C16						57				
C17			110							
C18				96						
C19						78				
C20									86	
C21	83									
C22					89					
C23		72								
C24					69					
C25		116								
C26		116								
C27									80	
C28							125			
C29	120									
C30			118							
C31			69				48			-41
C32			114							
C33				104						
C34		94								
C35		110								

TABLE 1-B* (Con't.)

C36					87			
C37						126		
C38							65	
C39			87					
C40			83					
C41			97					
C42			81					
C43				107				
C44							64	43
C45		86						
C46			56					
C47	94							
C48					91			
C49		86						
C50	65							

* The entries in this table were multiplied by 100.

TABLE 2-A*

Confusion Matrix Florida (Group 1)

Categroy	1	2	3	4	5	6	7	8	9	10	11
1	81										
2	05	77									
3	02	02	78								
4	00	13	05	68							
5	01	22	08	18	74						
6	43	00	12	03	02	66					
7	31	22	12	06	04	16	54				
8	20	42	07	03	00	04	30	71			
9	00	10	07	58	17	01	01	03	60		
10	12	39	08	06	05	07	24	35	09	71	
11	36	09	07	10	05	33	23	25	09	11	56

* Decimals are ommitted

TABLE 2-B*

Confusion Matrix Commonwealth (Group 2)

Category	1	2	3	4	5	6	7	8	9	10
1	67									
2	12	74								
3	05	03	69							
4	02	08	03	78						
5	00	05	11	12	81					
6	31	01	05	04	00	74				
7	09	03	16	17	07	16	42			
8	22	02	16	01	00	32	12	50		
9	40	03	08	02	-01	39	10	34	69	
10	24	10	19	00	17	01	00	19	26	97

* Decimals are ommitted

TABLE 3*

Robust Latent Categories

Category Label	Number 1	2	3	4	5	6	7	8	9
1 Preparing for Instruction	1 2 10 21 29 47 50								
2 Record Keeping		14 25 26 34 35 45 49							
3 Developing Interpersonal Skills			7 17 30						
4 Professional Working Relationships				18 33 39 42					
5 Functioning in the Community					12 22 24 43				
6 Managing Instruction						13 16 48			
7 Involves Students in Learning							5 6 11 37		
8 Providing for Individual Differences								20 27 38 44	
9 Providing a Model									31 36

* Entries are paired statement numbers